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ABSTRACT

To determine whether needed components of the career education program were directed toward the potential Mesa school dropouts, a study was made of their characteristics. Samples used were an exhaustive sample of the 431 dropouts of the 1972-1973 school year and a random sample of the 1973-1974 potential dropouts (those students over age 16 or beyond grade 8). Selected demographic data were collected and student absence rates monitored. The Mesa school dropout comes from a diverse background and prediction is questionable. Recommendations include a continuation of the data collection for permanent profiles of the student body, a classification of students by course of study in one of three categories: college preparatory, general education, or vocational education, a followup of no-shows to document summer dropouts, and teacher/student contract programs. Recommendations for counselor activities concern record-keeping and more time scheduled with students. (MU)

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THE PICTURE OF A DROPOUT

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FOREWORD

The major function of the Mesa Public Schools Department of Research and Evaluation is to provide information to decision makers. This data should be timely, valid, reliable and of sufficient depth, yet concise enough to speak squarely to the issues at hand.

In line with the above function, this report by the Department of Research and Evaluation profiles the dropout in the district. The profiles are made up of selected demographic characteristics. Additional information concerning the dropout obtained through interviews is also presented. Recommendations are also made, that when followed would enhance our understanding of the dropout and his problems.

The major effort in the development of this report was the responsibility of Research and Evaluation under the direction of Mr. Frank Vicino and Dr. James DeGracie. Mrs. Mary Christen of the Research and Evaluation staff made significant contributions in data collection with great assistance from Mrs. Grayce Rawls. The typing of the manuscript was done by Miss Susan Woods. Significant contributions to the overall report were made by Directors Bert Fitch and Byron McKinnon. The schools that allowed the intrusion into their normal office procedures were also of significant assistance.

Research and Evaluation is a department in the Administrative Services Division. The division head is Assistant Superintendent Dr. James Zaharis.

Dr. George N. Smith
Superintendent
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PREFACE

The work presented and reported herein was performed pursuant to contract #74-RMG-1313 from the Arizona State Department of Education. However, the opinions expressed herein do not necessarily reflect the position or policy of the Arizona State Department of Education and no official endorsement by the Arizona State Department of Education should be inferred.

Objectives

A. To develop a profile for the Mesa school dropout which includes variables such as age, sex, ethnic background, academic standing, and I.Q.

B. To establish procedures for collecting profile information to obtain baseline data on the Mesa school dropout.

C. To determine if necessary components in our current Career Education/Vocational Education programs are directed toward the Mesa school dropout.

Approach

A. Twenty (20) separate demographic characteristics were obtained on the two separate samples that were used in this study.

1. The first sample was an exhaustive sample or a complete sample of all 431 school dropouts during the year of 1972-73.

2. The second sample considered in the study was a random sample of 525 students who were eligible dropouts during the 1973-74 school year. A student who is eligible is one that has completed the eighth grade and/or is 16 years of age.

B. In addition to the information on each of the demographic variables for each of the students from the samples listed above, additional information was solicited from counselors at each of the high schools and junior highs as well as from the directors of the guidance

highs as well as from the directors of the guidance services and the computer center.

Results and Recommendations

It appears that 7.5% of the students eligible to drop out in the Mesa Public Schools do in fact drop out of school before the completion of the twelfth grade. If the no-show students are considered, i.e., those students that register at the end of the school year and do not appear at the beginning of the next school year, it could be that the dropout rate is as high as 15% of the eligible students.

In regard to the demographic characteristics, there were no characteristics that were dominantly in favor of the dropout student. However, the following six demographic characteristics have a multiple correlation of 0.47 with dropping out of school. The six demographic variables, in regard to what they contribute over and above the other variables, are:

	Demographic Characteristics	Multiple R (accumulated)
1.	Father at home	0.252
2.	Metropolitan Achievement Test Score	0.322
3.	Race	0.335
4.	High school attended	0.347
5.	Last grade completed	0.383
6.	Grade at withdrawal	0.467

The column on the right shows the accumulation in the multiple R as each of these variables were added to the multiple regression equation.

In addition to the six factors or demographic characteristics listed above, it was found that students' absence rates would be

In addition to the six factors or demographic characteristics listed above, it was found that students' absence rates would be a viable monitoring variable in the prediction of potential dropouts.

In practical terms, then, if the counselor uses information such as whether a student's father is at home, whether he is tending to have low achievement scores, and his attendance record, and merges this information with personal observation, a large number of potential dropouts could be identified and once identified, remedial action could be taken.

Specific recommendations coming from this report are as follows:

1. The procedure for collection of data from the Mesa school dropouts be followed.
2. The no-shows be followed up in order to document the summer dropouts.
3. Alternative experiences such as Opportunity Mall be encouraged.
4. Data processing provide an additional absence report listing only students that have been absent four or more consecutive days and/or those students that have been absent for ten days out of the last 15.
5. Counselors make an entry on the student record concerning each visit that the student makes to the counselor. The entry should document the date as well as the reason for the visit.
6. Counselors' priorities be rearranged to allow more time with students.
7. Teachers participate in teacher/student contract

7. Teachers participate in teacher/student contract programs. Some release time would be needed for teachers in order to ensure the highest individual contact with students as possible.
8. More district uniformity be sought in recording policies.

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THE PICTURE OF A DROPOUT

I. PURPOSE AND OBJECTIVES

The Mesa Public Schools, through their various programs in general education, career education, and vocational education, have a firm commitment to the total education of the youth of the Mesa School District. If a student in the Mesa Public School system chooses not to complete his designated program, but instead chooses to drop out, all people who have contributed to his program feel that they, not the student, have failed. Therefore, when funds were made available through the State Department of Education for a mini-study, the Mesa Public Schools were more than happy to take a more indepth look at the Mesa School dropout. This study, then, attempts to accomplish this by addressing the objectives listed below:

1. To develop a profile of the Mesa school dropout that includes variables such as age, sex, ethnic background, academic standing, and I.Q.

2. To establish procedures for collecting profile information to obtain baseline data on the Mesa school dropout.

3. To determine if necessary components in our current Career Education/Vocational Education programs are directed toward the Mesa school dropout.

In conjunction with the Mesa Public Schools' concern for the dropout, is their concern for programs which are initiated within the school district. One of the important indicators of the success of a program such as career education and/or vocational education is the program retention rate of the students. If programs such as these are in fact making education more relevant, a positive effect should be exhibited by a decrease in the dropout rate. However, before the dropout rate can be reliably used as an indicator of the impact of programs

such as these, a profile of the school dropout should be made. It could be that present programs such as career education and vocational education do not directly impact on the school dropout. Without a profile of the dropout, this may not be readily apparent.

The profile of a dropout could also serve as a starting point for any curriculum development project designed to impact on the dropout population. It could also serve as the initial spade work in a needs assessment designed for the same population.

This report, then, addresses itself to the above stated objectives, with the hope that follow-up studies will be initiated to do more indepth assessment of the specific needs of the school dropout.

II. METHODS AND PROCEDURES

Sample

Two separate samples were used in this study. The first sample wás an exhaustive sample or complete sample of all school dropouts during the year 1972-73. The total number in this sample is 431. The second sample considered in the study was a random sample of 525 students who were eligible dropouts during the 1973-74 school year. A student who is eligible is one that has completed the eighth grade and/or is 16 years of age.

For each of the students selected in the above samples, demographic characteristics were obtained. The demographic characteristics included in this study are as follows:

1. Sex
2. Race
3. Child's place in the family, i.e., second of five children
4. Mother living
5. Father living
6. Mother at home
7. Father at home
8. Mother employed
9. Father employed
10. Academic achievement as measured by the Metropolitan Achievement Test
11. Grade point average
12. District schools attended
13. Total number of district schools attended
14. Years in the district
15. Last grade completed

16. Grade at time of withdrawal

17. Absence rate

18. Counseling visits

19. Attendance at opportunity hall

20. Age withdrew

Two other demographic variables which were thought to be important were a measure of academic aptitude such as the student's score on the Otis-Lennon and the type of course work (e.g., general education, college preparatory) that the student was taking. However, in the case of the academic aptitude test, no test was uniform for the populations investigated. In the case of the type of student course work, the records were not specific enough to infer the exact course of study on which the student was embarked.

The procedure for gathering the above information included checking student clinical folders, permanent record cards, and registration and information forms for the students in each group. This information was gathered at the district's Pupil Personnel Office and by visiting each of the secondary schools in the district.

In addition to the information on each of the demographic variables for each of the students listed above, additional information was solicited from counselors at each of the high schools and junior highs, as well as from the directors of the guidance services and the computer center.

Analysis

A number of statistical techniques were used to investigate the data collected from both samples. They ranged from simply

the plotting and graphing of the data to more complex methods of factor analysis and multiple linear regression.

Factor analysis was initially utilized in analyzing the data from the 1972-73 complete 431 student dropout file. Factor analysis is a technique which assists in determining those variables which are highly correlated. If two variables are highly correlated, then only one of them need be used to explain a given phenomenon. The factor analysis technique, then, combines the different variables which are not highly correlated into a factor which explains the majority of the variability in the data. For example, in our dropout sample, if all of one sex attended one of the high schools, and all of the other sex attended the other high school, one would not need to obtain information on both sex and high school because you have a correlation of 1 between these two variables. In any factor generated through factor analysis, one of these variables would always be omitted if the other was included.

In analyzing the data obtained from the random sample of 525 students who attended school during this 1973-74 school year, multiple linear regression was used. Multiple linear regression is a statistical technique that can be used to untangle a number of interrelated variables. It differs from factor analysis in that one of these variables is determined to be a criterion variable, in this case whether the student dropped out of school or not, whereas with the other sample, all students had dropped out of school. The technique of multiple linear regression assumes that the criterion variable is linearly related to two or more independent variables and a regression equation is developed from the sample data which relates the criterion

variable to the set of independent variables. As previously stated, in the case of the dropout study the criterion variable is whether or not the student dropped out of school and the selected set of independent variables are the demographic characteristics previously mentioned. The resulting regression equation, then, estimates the weighting or importance of the unique contribution of each of the independent variables in predicting the criterion variable. That is, which of the selected demographic characteristics and in what combinations are the best for predicting whether a student will drop out of school.

As stated in the introduction, information was also obtained from the counselors at each of the secondary schools in Mesa as well as the directors of the guidance services and the computer center. This information was combined and synthesized and, in conjunction with the results of the analysis for the two samples of dropout students, was merged into the final recommendations which are found in this report.

III. RESULTS

In discussing the results of this study, the demographic characteristics of each of the samples will be presented. This will be followed by the results of the analytic procedures used to analyze the two samples of data. A summary of results including a comparison of the different samples concludes this section.

Total Dropout Sample 1972-73

Of the total of 431 dropouts for the 1972-73 school year, 57% were male. The ethnic breakup of this sample was 79% Anglo White, 0% Oriental, 12% Spanish Surname, 3% Negro, 6% American Indian, and ½% Other. The students on the average tended to be the 2.7th child in the family. The family size on the average was 4.4. Eighty-nine percent (89%) of the sample had both parents living, with 97% their mother living and 91% their father living. Considering the variable of parents at home, it was found that 59% of the sample had both parents at home, with 88% having their mother at home and 65% having their father at home. Considering the variable of employment of the parents, 25% of the sample had both mother and father employed, with 40% having their mother employed and 70% having their father employed. The average stanine score on the Metropolitan Achievement Test for this sample was 2.14. Considering the variable of last school attended, 53% attended Mesa High School when they dropped out of school, 34% Westwood High School, 4% Carson Junior High School, 1% Fremont Junior High, 3% Kino Junior High, 2% Mesa Junior High, and 2% Powell Junior High School. The average number of district schools attended was 2.9, and the average

number of years in the district was 5.7. On the average, the last grade completed was 9.6. However, the grade in which they were enrolled when they withdrew on the average was 10.8. The average absence rate for the last two years of attendance for this sample was 17.5. The average number of counseling visits was 6.6 per year for the last two years of attendance, and the average age at withdrawal was 16.7.

When factor analysis was used to determine which of the selected demographic characteristics were highly correlated and which of those in combination explained the majority of the variability in the data, it was found that the selected demographic characteristics were highly independent. That is, they seemed to be yielding independent bits of information. Going back to our example of sex being completely confounded with the high school attended, it is found that this is not the case, but there is an equal number of males and females at all high schools, or rather that the overall 57% male ratio is approximately the same at both high schools. This is also true of sex and race where we found a correlation of 0.07 between sex and race; that is, again the proportion of 57% male seemed to be true for the selected ethnic populations. The results of the factor analysis, then, were simply that none of the demographic variables were highly correlated and that in combination none of the generated factors or combinations of demographic variables tended to account for a great deal of the variablilty observed among the values of the selected variables.

Random Sample of 1973-74 Population

In discussing the random sample of the 525 students who

were in attendance during the 1973-74 school year, the demographic characteristics of the entire sample will be presented first. A comparison of the correlations between the selected demographic characteristics and the criterion variable of dropping out of school will then be made. The conclusion of this section will present the results of the multiple regression analysis.

It should be pointed out that this random sample of 525 should fairly well represent the total eligible population of school dropouts. Therefore, when a comparison is made between the total dropout population of 1972-73, this population representing the total school population eligible to dropout in 1973-74 and the randomly selected dropouts for the same year, any deviations can be attributed to those factors which influence a student's dropping out.

Of the total sample of 525 students, 52% were male. The ethnic breakdown was 86% Anglo White, 0% Oriental, 6% Spanish Surname, 0% Negro, 2% American Indian, and 0% Other. The student's place in the family was on the average 2.5 out of an average total number of children of 4.1. Considering the demographic factor of both parents living, we find that 94% of the students selected had their parents living. Of that number, 98% had their mother living and 96% had their father living. Considering the factor of both parents at home, it was found that 88% had both parents at home. Of that percentage, 96% had their mother at home and 90% had their father at home. Considering the factor of both parents being employed, it was found that 35% had both parents employed; and of that percentage, 38% had their mother employed and 90% had their father employed.

The average Metropolitan Achievement Test score in stanines was 3.28 for this sample. Of this sample, 40% attended Mesa High School, 32% Westwood High School, 6% Carson Junior High, 5% Fremont Junior High, 7% Kino Junior High, 5% Mesa Junior High, and 4% Powell Junior High. On the average, the students attended 2.6 district schools. The average number of years the students were in the district was 6.3. On the average, the last grade completed of this sample was 9.3, and of those that withdrew the grade attending at withdrawal was 10.3. The average number of absences for the total sample was 7.4 per year for the last two years, and the average number of visits with the counselor during the last two years was 2.7 per year. The average age of the total sample was 16.4. For the total sample of 525 students, 7.2 percent dropped out of school during the 1973-74 school year.

All of the simple correlations between the demographic variables and the criterion variable are presented in Appendix I. Care should be taken in interpreting these simple correlation coefficients. In some cases, the Pearson's Product Moment Coefficient of Correlation is between two binomial variables. Although this is a valid technique, care should be taken in interpretation. A discussion of the problems which may arise in interpreting the results is also presented in Appendix I.

Examining the simple correlations, it can be seen that none of the demographic characteristics are highly correlated with dropping out of school. The five demographic variables that had the highest simple correlation with dropping out of school are: father at home with a correlation of -.025, both

parents at home with a correlation of -.024, Metropolitan Achievement Test scores with a correlation of -0.23, and years in the Mesa Public School District with a correlation of -0.18. The minus signs in these figures simply indicate that there is a higher dropout rate among those students with a lower score on the demographic characteristic. For example, the -0.25 between dropout and father at home, which is the correlation between two binomial variables, simply means that there is a higher dropout rate for those students who do not have their father at home. In the case of the number of years the student was in the district, there is a higher dropout rate for those students who were in the district the least. Those variables which had the lowest simple correlation with the dropping out of the student were: the student's or child's place in the family (i.e., fifth child) with a correlation of 0.00, the sex of the student with a correlation of -0.01, if both of the parents of the student were employed with a correlation of -0.02, if the mother was employed with a correlation of -0.02, and the total number of children in the family with a correlation of -0.03.

Two correlations that were found lower than anticipated was the correlation between dropping out and race which is found to be 0.09, and the correlation between dropping out and the absence rate of the student which was found to be 0.07.

In examining the data using multiple linear regression, it should be pointed out that as the variables are included in the multiple regression equation, they account for the variability due to their contribution alone plus any variability which they have in common with other demographic variables.

Going back to the example previously mentioned, if all of one sex went to one high school and all of another sex went to the other high school, then if high school was included in the multiple regression equation, sex would not be included because all of its variability has already been accounted for by including the variable, high school attended.

At the completion of multiple regression analysis, it was found that six of the demographic variables accounted for 22% of the variability among the random sample in regard to dropping out. Or, there was a multiple correlation between these six variables and dropping out of 0.47. None of the other demographic variables contributed significantly to the predictability of dropping out over and above these six. The six demographic variables in their order of importance to the equation in regard to what they contribute over and above the other variables are:

Demographic Characteristics	Multiple R (accumulated)
1. Father at home	0.252
2. Metropolitan Achievement Test Score	0.322
3. Race	0.335
4. High school attended	0.347
5. Last grade completed	0.383
6. Grade at withdrawal	0.467

The column on the right shows the accumulation in the multiple R as each of these variables were added to the multiple regression equation.

Comparison of Samples

In this section, a comparison is made between the different samples on the six demographic characteristics that were deemed to be the most important in predicting dropping out in the multiple regression analysis.

Figure 1 illustrates the relationship, in regard to father at home, between the random sample of 525 students from the 1973-74 school year, the random sample of that population who in fact dropped out (37 students) in the 1973-74 school year, and the complete dropout sample from 1972-73 (431 students). It is apparent from this figure that there are fewer fathers in the homes of dropouts (66% and 65% respectively from the two dropout samples) than in the homes of the randomly selected students (90%). There is also a high degree of agreement between the two dropout samples. It should again be pointed out that the random sample of 525 students from the eligible student dropout population should be representative of the entire population of the Mesa Public Schools in 1973-74.

FIGURE 1

PERCENTAGE OF STUDENTS WITH
FATHER AT HOME

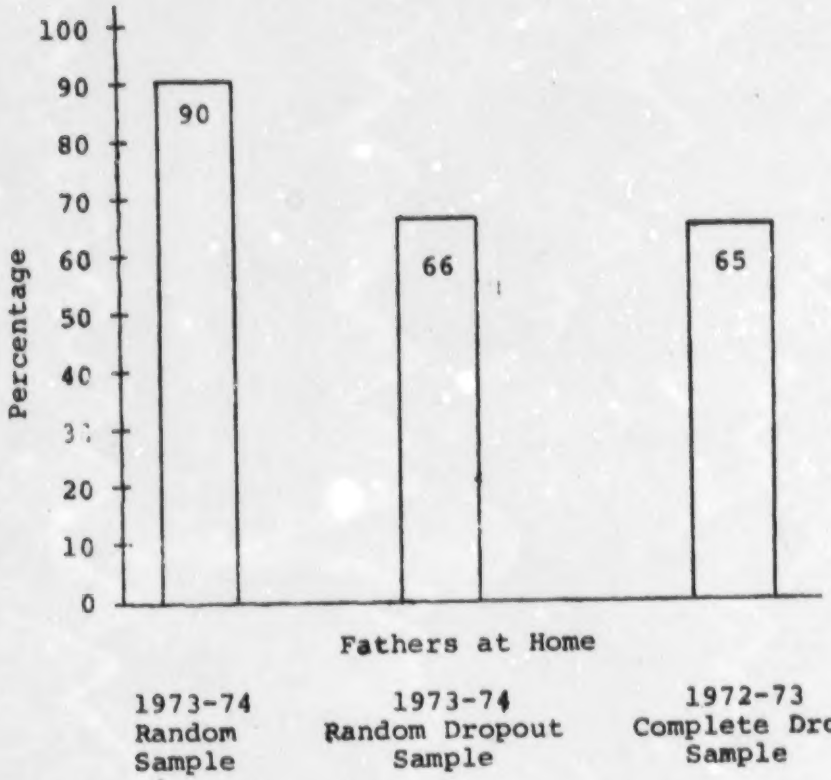


Figure 2 presents the mean Metropolitan Achievement Scores in stanines for the three different samples. The average stanine score of the random sample is lower than would be expected. However, the average stanine score of the other two samples is significantly less. Again there is close agreement between the randomly selected dropouts and the total dropout population.

FIGURE 2

STUDENTS MEAN SCORE ON THE
METROPOLITAN ACHIEVEMENT TEST

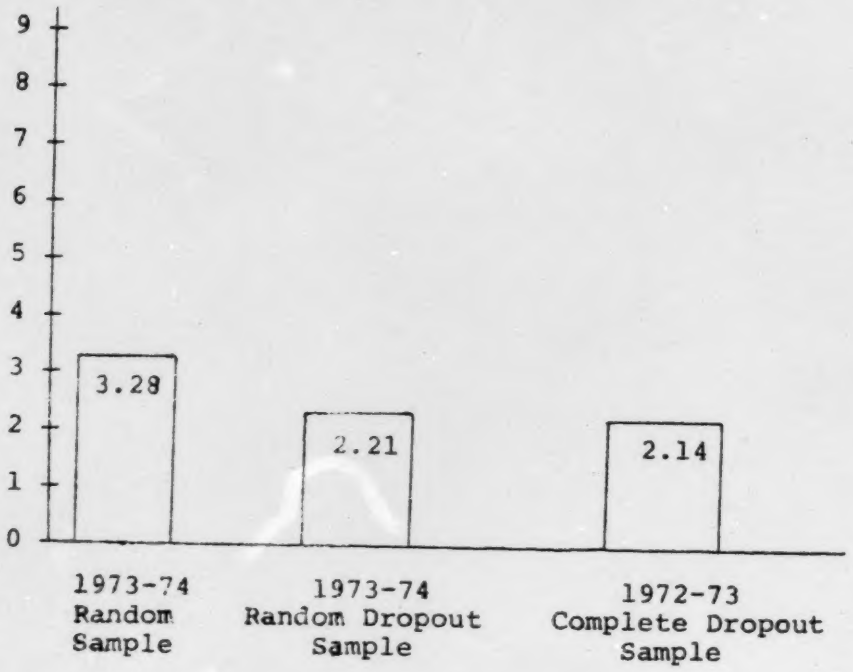


Table 1 presents the three samples by the selected race code groups. Again, we see that there is much more agreement between the dropout samples than there is for the random sample. However, the disagreement between these two samples and the random sample in regard to this variable is not as large as those in the two previous variables.

TABLE 1

PERCENTAGE AND NUMBER OF STUDENTS
IN EACH RACE CODE GROUP

Race Code Group*	1973-74 Random Sample		1973-74 Random Dropout Sample		1972-73 Complete Dropout Sample	
	%	N	%	N	%	N
Anglo White	86	(452)	81	(30)	79	(341)
Oriental	0	(0)	0	(0)	0	(0)
Spanish Surname	6	(35)	5	(2)	12	(52)
Negro	0	(3)	3	(1)	3	(14)
American Indian	2	(12)	11	(4)	6	(22)
Other	0	(0)	0	(0)	.5	(2)

A further examination of the data was made to determine if there was a different sex ratio among the ethnic populations. Table 2 presents the 1972-73 Complete Dropout Sample by race and sex. The percentage of males for this sample was 57%. The only group that differs significantly from this figure was Group 4 (Negro), with 71% of the sample male. However, there were only 14 students in this group.

TABLE 2

PERCENTAGE AND NUMBER OF STUDENTS BY
RACE CODE GROUP AND SEX

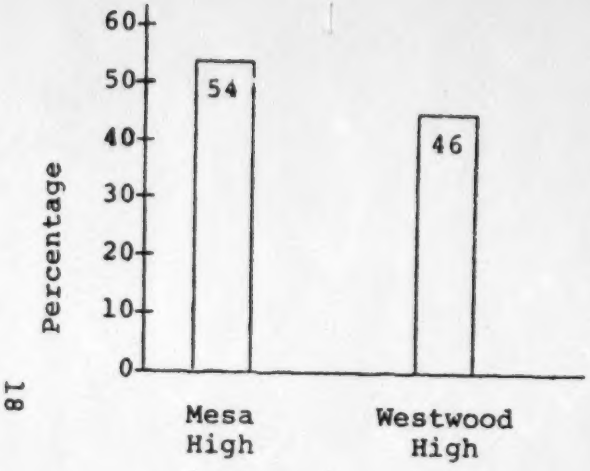
1972-73
Complete Dropout Sample

Race Code Group	Male	Female
Anglo White	55 (186)	45 (155)
Oriental	0 (0)	0 (0)
Spanish Surname	62 (32)	28 (20)
Negro	71 (10)	29 (4)
American Indian	59 (13)	41 (9)
Other	2 (100)	0 (0)

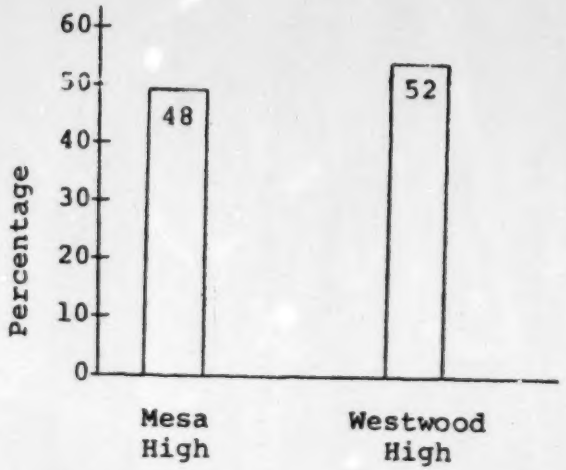
Figure 3 presents the sample distributions by the last high school attended. The junior high schools are not included in this comparison. It is apparent from this figure that although Mesa High had a total of 54% of the randomly selected students, they only had 48% of the dropouts for the 1973-74 school year. However, these results do not agree with the total dropout population for the 1972-73 school year. In that case, Mesa High had 61% of the total dropouts; so there seemed to be a reversal in the dropouts for the different high schools between the years 1972-73 and 1973-74, or that the random sample was biased with respect to this variable.

FIGURE 3

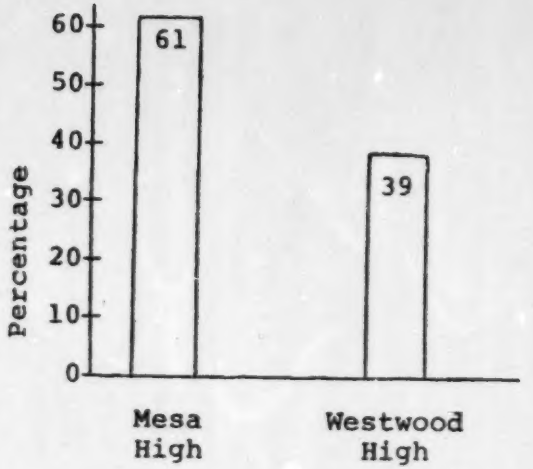
PERCENTAGE OF STUDENTS BY LAST HIGH SCHOOL ATTENDED



1973-74
Random
Sample



1973-74
Random Dropout
Sample

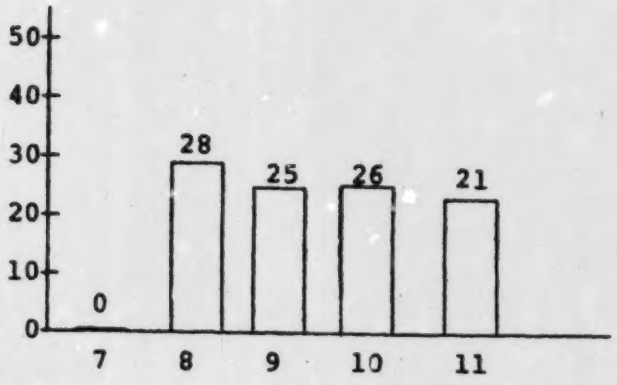


1972-73
Complete Dropout
Sample

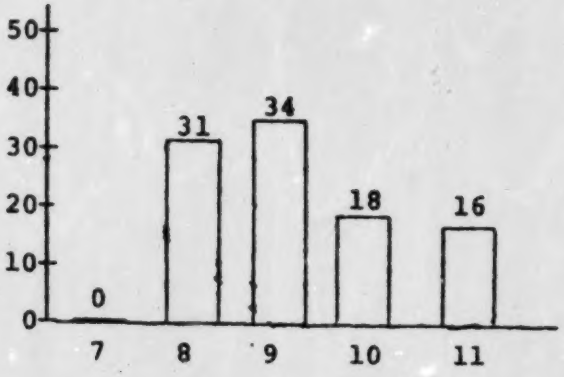
Figure 4 presents sample distributions by grade level completed for the three samples. As would be expected, for the total random sample there is a somewhat uniform distribution over grades 8, 9, 10, and 11, with a slight decrease in the 11th grade. However, considering the 1972-73 dropouts, it can be seen that 56% completed at least the 10th grade. With the 1973-74 dropouts, however, 34% completed at least the 10th grade at the time they withdrew.

FIGURE 4

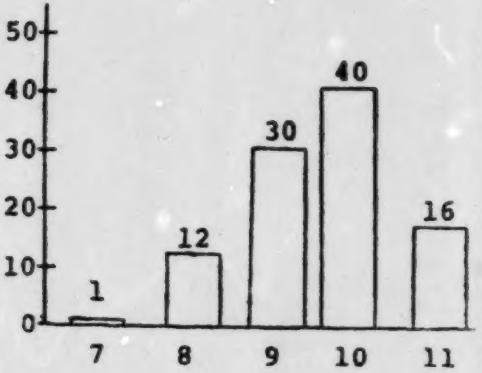
PERCENTAGE OF STUDENTS BY
LAST GRADE COMPLETED



1973-74
Random
Sample



1973-74
Random Dropout
Sample



1972-73
Complete Dropout
Sample

Figure 5 presents the percentage of students for the three samples under consideration by grade at the time of withdrawal or for those students who have not dropped out of school the grade in which they are currently enrolled. These distributions are similar to those presented in Figure 4, that of the last grade completed, but they do differ slightly. Again, there is a semi-uniform distribution for the random sample over grades 9-12 with a slightly higher percentage in grades 9 and 10. Students in the 8th grade were not included in the random sample from 1973-74. Therefore, the random sample and the random dropout sample have grades 9-12 whereas the complete dropout sample has grades 8-12. For the complete dropout sample, we have a distribution that is skewed to the right; that is, there were more students (64%) that drop out in the 11th and 12th grade than in grades prior to the 11th. Again there is a slight disagreement between the complete dropout sample of 1972-73 and the random dropout sample found in 1973-74. With respect to this sample, we see that 47% or just under half of the students drop out in grades 11 and 12.

A further analysis was done with the data to determine if the proportion of males and females differed with respect to the grade at withdrawal. From Figure 6, using the complete 1972-73 dropout sample, it can be observed that the distributions do differ somewhat. For the male students, 66% of them drop out in grades 11 and 12, whereas for the female students, this figure is 59%. This discrepancy appears to be largest in the 9th grade, where female students tend to drop out more, percentage-wise, than male students.

FIGURE 5

PERCENTAGE OF STUDENTS BY GRADE AT TIME OF WITHDRAWAL (OR CURRENT ENROLLMENT)

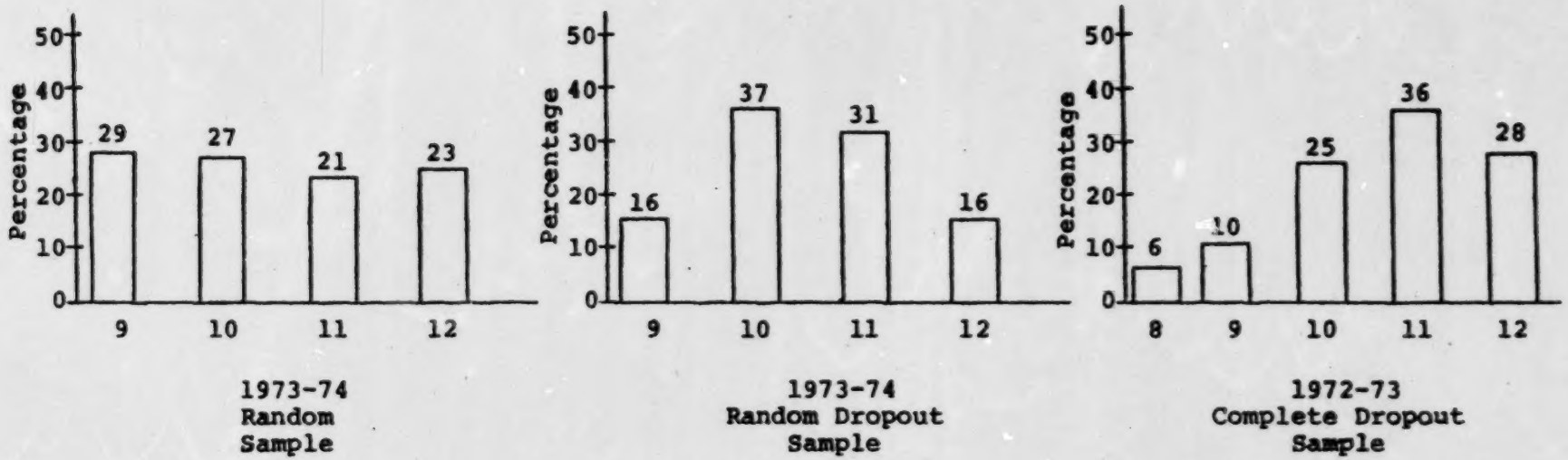
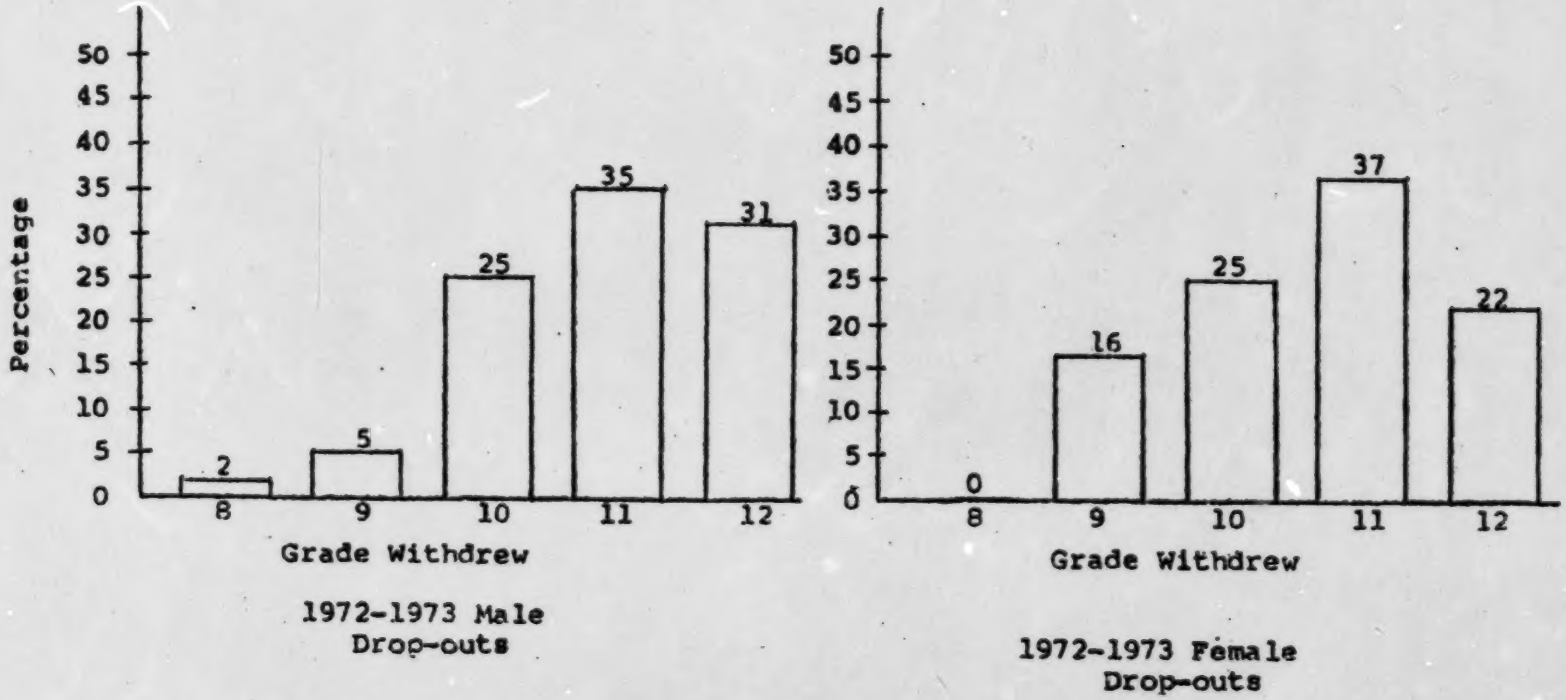


FIGURE 6

PERCENTAGE OF STUDENTS BY GRADE AND SEX
AT TIME OF WITHDRAWAL



Additional Investigations

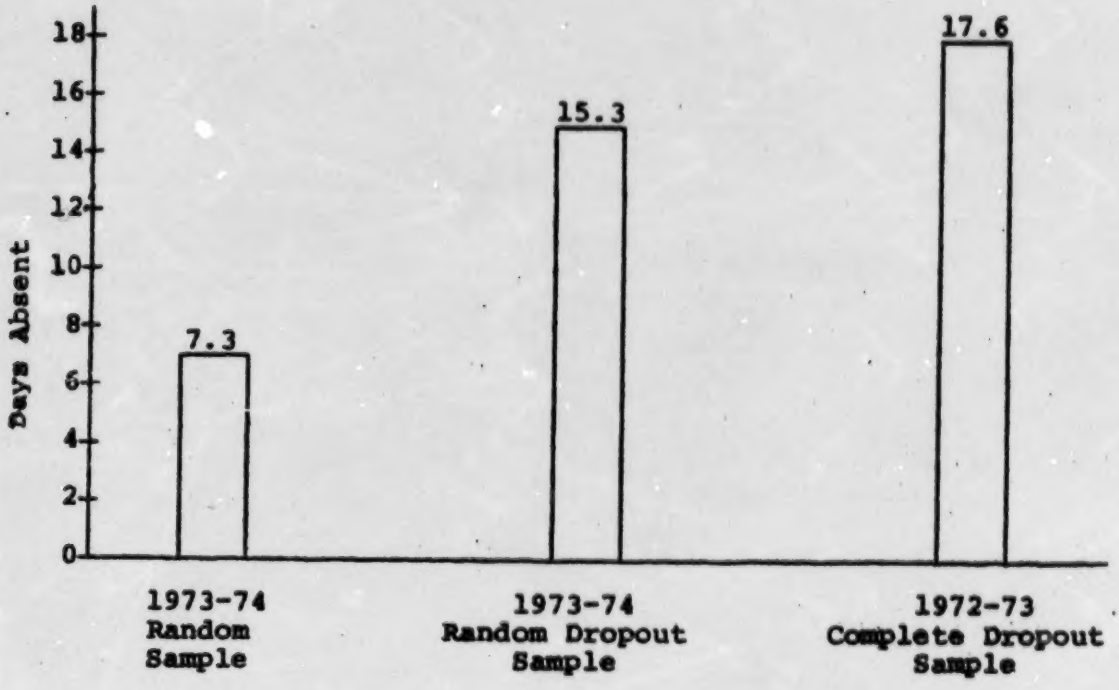
In addition to the data studies presented in the preceding sections, two additional studies were thought to be important enough to further investigate. One of the studies was a further analysis of the average number of absences per year students had during the past two years prior to dropping out of school. The other sub-study was determining the number of students that enrolled for the coming school year but did not show up at the beginning of the new school year.

The variable, the average number of absences per year a student had during the past two years, did not have a high simple correlation, but showed up quite low (0.07) with dropping out of school and did not appear as one of the six best predictors. The correlations between number of absences and father at home was 0.15, with race 0.10 and with grade at time of withdrawal 0.06. In addition, it is a variable that could be easily monitored on an individual student basis.

Figure 7 presents the average number of absences per student per year. It can be seen from this figure that there is a significant difference in the number of absences per student between the random sample representative of the entire student population and the average number of absences for the random dropout sample 1973-74 and for the complete dropout sample 1972-73. As in previous figures, there is more agreement between the dropout samples than there is with the random sample.

FIGURE 7

AVERAGE NUMBER OF ABSENCES
PER STUDENT PER YEAR



The second additional investigation concerns the no-shows. That is, the students that pre-register at the end of one school year but fail to show up for the beginning of the next school year. Table 3 presents the number of no-shows for the 1973-74 school year, compared to student enrollment in September of 1973. As shown in Table 3, the total enrollment in September of 1973 was 7,470 students. There were 626 students that had pre-registered and did not show up at the beginning of the school year, yielding an 8.4 percent figure for the proportion of no-shows to the September enrollment. In discussions with counselors and with the head of pupil records, it was determined that no systematic additional comments or follow-ups are made on this

no-show population. For example, if after the beginning of the school year another school district requests the student's records which would indicate that the student is in fact a transfer, not a dropout, no notation is made on the student's records. Also, no formal procedure exists to contact the no-show population at the beginning of the school year.

TABLE 3

NO-SHOWS FOR 1973-1974 SCHOOL YEAR COMPARED TO STUDENT ENROLLMENT AS OF SEPTEMBER 1973

	Enrollment as of Sept. 1973	Number of No-Shows	Percent of Enrollment
Mesa High	2744	215	7.8%
Westwood High	2664	218	8.2%
Carson Junior	440	36	8.1%
Fremont Junior	319	43	8.4%
Kino Junior	509	44	13.9%
Mesa Junior	445	35	10.1%
Powell Junior	349	35	7.8%
Total	7470	626	

Interviews

As stated in the Methods and Procedures section of this report, interviews were conducted with counselors at each of the high schools and junior highs, as well as with the directors of the guidance services and the computer center. The results of these interviews were general in nature; however, the people interviewed seemed to concur on five areas which could use further investigation and/or implementation. The five areas are:

1. Data processing should and could provide the secondary schools with an additional absence report. It would simply flag those students which tend to have a high number of absences. Some investigation would be needed to determine the conditions for flagging, some suggestions would be flagging a student that has been absent for 4 days or more and/or absent for 10 out of 15 school days.

2. Consideration should be given to the rearrangement of the priorities of the counselors to allow more time with the students.

3. The teachers should participate in teacher/student contact programs. Some release time would be needed for the teachers in order to ensure the highest individual contact with students as possible.

4. More night classes should be developed to accommodate the high school student body as part of the high school and not as part of the continuation school.

5. More alternative experiences like Opportunity Hall should be encouraged.

IV. SUMMARY

The Mesa school dropout differs from the population of potential dropout students on a number of characteristics. The profiles of the 1972-73 complete dropout sample and the 1973-74 random sample on the demographic characteristics used in this study are presented on the following page.

	Percent of Male Students	Percent Anglo of Students	Average Place in Family	Percent of Students with Mother Living	Percent of Students with Father Living	Percent of Students with Mother at Home	Percent of Students with Father at Home	Percent of Students with Mother Employed	Percent of Students with Father Employed
1972-73 Complete Dropout Sample	57	79	2.7	97	91	88	65	40	70
				89 Both		59 Both		25 Both	
1973-74 Random Sample	52	86	2.5	98	96	96	90	38	90
				94 Both		88 Both		35 Both	

	Mean of Metro Achieve. Stanine	GPA	Average No. of Dist. Schools Attended	District High Schools Attended by Percent		Avrg. Yrs. in Dist.	Last Grade Comp.	Grade at With-draw Time	Avrg. Absence Rate	Number of Counselor Visits	% of Stu. Att. Opp. Hall	Age	Number of Children in Family
				Mesa	Westwood								
1972-73 Complete Dropout Sample	2.14	3.41	2.9	53	34	5.7	9.6	10.8	17.5	6.6	14.8	16.7	4.4
1973-74 Random Sample	3.28	2.35	2.6	40	32	6.3	9.3	10.3	7.4	2.7	1.2	16.4	4.1

None of the above characteristics show an overwhelming dominance for one sample over the other.

The six demographic characteristics that yield a multiple correlation with dropping out of school of 0.47 are:

	Demographic Characteristics	Multiple R
1.	Father at home	0.252
2.	Metropolitan Achievement Test Score	0.322
3.	Race	0.335
4.	High school attended	0.347
5.	Last grade completed	0.383
6.	Grade at withdrawal	0.467

In addition to these demographic characteristics, it would appear that the absence rate of the students could be monitored in order to help the counselor in predicting a student dropout.

Because the study was geared toward the obtaining of available data, an important variable was omitted from the study, that of counselor judgment with respect to whether a student will drop out of school or not. It is felt that if this variable was added to the above six selected demographic characteristics, a higher multiple R could be obtained. In practical terms, if the counselor uses the information such as whether a student's father is at home, whether he is tending to have low achievement scores, and his attendance record, and merges this information with personal observation, a large number of potential dropouts could be identified, and once identified, remedial action could be taken.

Some of the findings of this study were somewhat surprising. It was found that although race seems to contribute somewhat to the profile of the dropout as shown in the table above, it does not appear to contribute significantly to the overall multiple R, an increase from 0.322 to 0.335. Another finding that was not anticipated was that over 50% of the students complete at least the 10th grade before dropping out. There was some disagreement between our two dropout samples with respect to this variable, but if the complete dropout sample of 1972-73 is used, the students appear to complete more school before dropping out than what was previously thought. Using the same sample, a corresponding finding was determined in regard to the grade in which the student was enrolled at the time of withdrawal. It was found that 20% of the students withdrew in the 12th grade, and 36% of the students withdrew in the 11th grade. Expanding on that finding, it was found that females tend to drop out somewhat earlier than males.

It was found in the study that 7.5% of the students in the Mesa Public Schools drop out during the school year. However, it was also determined that 8.4% of the pre-registered students for a coming school year do not show up for the new school year. No records are available to document what happened to these 8.4% of the student population. If all of them were dropouts, the actual dropout figure for the entire year would double or be approximately 15% of the student body dropping out of school per year.

V. CONCLUSIONS AND RECOMMENDATIONS

General

This study addressed the following objectives:

1. To develop a profile for the Mesa school dropout which includes variables such as age, sex, ethnic background, academic standing and I.Q.
2. To establish procedures for collecting profile information to obtain baseline data from the Mesa school dropout.
3. To determine if necessary components in our current Career Education/Vocational Education programs are directed toward the Mesa school dropout.

The data presented in this study directly relates to objectives 1 and 2 above. Although hard data determining which program the students were pursuing was not available, it is felt that objective 3 was also met. In regard to objective 3, it was found that the Mesa school dropout comes from a very diverse background. And although by using the profile presented in this report in conjunction with the insight gained by the counselor, the chance of anticipating a potential dropout would greatly be increased, one cannot predict with assurity who will or will not drop out of school. The career education program designed in the Mesa Public Schools is intended to impact on all students and therefore would certainly impact the potential dropout students. The vocational education program at each of the schools and the Mesa Central Alternative High School is also designed to impact on as many students as possible and so again would directly impact on the potential

dropout population. In order to gain more objective data in the future on this topic, you will find a recommendation below to determine exactly which type of program each future dropout was enrolled in.

Data Collection Procedures

It is recommended that the following data be collected from all Mesa Public Schools dropouts during the coming years:

1. Student number
2. Student name
3. Sex
4. Race code
5. Age at time of withdrawal
6. School withdrew from
7. last grade completed
8. Grade enrolled in at time of withdrawal
9. Father at home
10. Grade point average
11. Total credits accumulated
12. Mental age
13. Number of absences
14. Number of counselor visits
15. Type of program student pursuing

The procedure that is recommended to obtain the above student information is as follows:

1. At the end of each semester, Data Processing will generate a list of dropouts as reported on the student data change form.
2. Data Processing will be responsible for profiling

characteristics 1-8 above and these characteristics will appear on the printout. Data Processing will send this printout to each school in the district that registered dropouts during the period being considered. The schools will then have the responsibility of filling in the profile characteristics 9-15 for each dropout and returning the completed forms to Data Processing.

3. Data Processing will take the added characteristics and complete the dropout student's data file. Data Processing will then generate an analysis of the dropouts on all of the above characteristics.
4. The Department of Research and Evaluation will further analyze the summarized data and submit a written report to the secondary schools.
5. At the completion of the school year, Data Processing will update the dropout list by eliminating re-entries from the list. A composite printout showing all Mesa dropouts for the completed school year will then be completed.

In regard to the course of study pursued by the student, each school will have to make a value judgment on placing the student in a given category. The following three categories are suggestions for definitions of these categories.

1. College preparatory --

   A student who has shown his intention to or has completed the ten unit requirement plus seven additional units in science, mathematics, social science and English. The other three units can be selected from

any area of study.

2. General education --

   A student who has shown his intention to or has completed the ten unit requirement plus no more than half the ten electives in the various vocational education program.

3. Vocational education --

   A student that has or has shown his intention to complete a ten unit requirement plus six or more of the ten electives in the various vocational education program.

Specific Recommendations

It is recommended that:

1. The procedure for collection of data from the Mesa school dropouts be followed.
2. The no-shows be followed up in order to document the summer dropouts.
3. Alternative experiences such as Opportunity Hall be encouraged.
4. Data Processing provide an additional absence report listing only students that have been absent four or more consecutive days and/or those students that have been absent for ten days out of the last 15.
5. Counselors make an entry on the student record concerning each visit that the student makes to the counselor. The entry should document the date as well as the reason for the visit.

6. Counselors' priorities be rearranged to allow more time with students.
7. Teachers participate in teacher/student contract programs. Some release time would be needed for teachers in order to ensure the highest individual contact with students as possible.
8. More district uniformity be sought in recording policies.

APPENDIX

Multiple Regression Results

CORRELATION

The correlation coefficient (r) used with continuous variables, has a range of $-1 \leq r \leq 1$. A correlation coefficient found between two binomial variables, however, may not have the same range. In fact, the correlation coefficient between two binomials has the range $-1 \leq r \leq 1$ if and only if the population is split into exactly the same proportions on both attributes. Otherwise, the maximum value of the correlation (r_{max}) depends upon the relative magnitudes of the two proportions.

Care must be taken, therefore, in interpreting correlation coefficients based on binomial data and, to a lesser extent, multinomial data. The observed correlation coefficient should not be compared to a maximum of ±1.00 but to its own possible maximum, r_{max}, which can easily be calculated. To make such an observed correlation comparable to the usual coefficient, one reasonable statistic to consider is r/r_{max}.

In the analysis of the dropout, correlations were found between dropping out, a binomial variable, and various demographic variables. Since many of the demographic variables used were multinomial, the range of their correlations approached -1 to +1. Some of the demographic variables used, however, were binomial variables. The example below illustrates the maximum possible value of the correlation (r_{max}), between dropping out and sex along with the correlation actually observed (r) and their ratio (r/r_{max}).

Variable	r_{max}	r	r/r_{max}
Sex	0.299	0.01	0.038

It can be seen that the value, r/r_{max}, is not increased very much over r. This was also found for the other binomial variables.

VARIABLE DEFINITION

Code	Variable	Definition
1	Sex	Male = 1, Female = 0
2	Race	White = 1, Spanish Surname = 2, Negro = 3, American Indian = 4, Other = 5
3	Child's place in family	First child = 1, Second child = 2, etc.
4	Number of children in family	Number
5	Child's relative place in family	First child of ten = 1/10 = 0.10
6	Parents living	Yes (both) = 1, No (both) = 0
7	Mother living	Yes = 1, No = 0
8	Father living	Yes = 1, No = 0
9	Parents at home	Yes (both) = 1, No (both) = 0
10	Mother at home	Yes = 1, No = 0
11	Father at home	Yes = 1, No = 0
12	Parents employed	Yes (both) = 1, No (both) = 0
13	Mother employed	Yes = 1, No = 0
14	Father employed	Yes = 1, No = 0
15	Metropolitan Achievement Score	Score in stanine
16	High school attended	None = 1, Mesa High = 2, Westwood = 3
17	District schools attended	Number
18	Years in district	Years measured to the nearest whole number
19	Last grade completed	Number of grade
20	Absence rate	Average number of absences per year for the last two years
21	Number of counseling visits	Number

Code	Variable	Definition
22	Age	Age to the nearest year
23	Grade at time of withdrawal or in which currently enrolled	Number of grade
24	Dropout	Yes = 1, No = 0

SIMPLE CORRELATION COEFFICIENT
BETWEEN THE SELECTED VARIABLES

	1	2	3	4	5	6	7	8	9	10	11	12
1	1.000	-.043	-.080	-.046	-.072	.057	.018	.035	.071	.007	.087	.064
2	-.043	1.000	.093	.172	-.035	-.005	.071	-.023	-.019	.032	-.022	-.064
3	-.080	.093	1.000	.689	.485	-.058	.045	-.058	.024	.059	.013	-.081
4	-.046	.172	.689	1.000	-.199	.026	.119	.004	.066	.118	.038	-.136
5	-.072	-.035	.485	-.199	1.000	-.036	.009	.003	.029	.036	.045	.073
6	.057	-.005	-.057	.026	-.036	1.000	.594	.869	.342	.276	.248	.110
7	.018	.071	.045	.119	.009	.594	1.000	.229	.276	.500	.085	.107
8	.035	-.023	-.058	.004	.003	.869	.229	1.000	.297	.141	.303	.078
9	.071	-.019	.024	.066	.029	.342	.276	.297	1.000	.571	.906	-.031
10	.007	.032	.059	.118	.036	.276	.500	.141	.571	1.000	.312	.052
11	.087	-.022	.013	.038	.045	.248	.085	.303	.906	.312	1.000	-.067
12	.064	-.064	-.081	-.136	.073	.110	.107	.078	-.031	.052	-.067	1.000
13	.041	-.063	-.097	-.156	.079	.059	.115	.015	-.112	.067	-.159	.925
14	.004	-.016	.004	.061	-.044	.335	.177	.370	.398	.220	.429	.239
15	-.177	.043	.096	.042	.090	.083	.069	.057	.112	.102	.107	.031
16	.020	-.046	.132	.065	.087	-.094	-.095	-.086	-.015	-.076	.014	.051
17	-.029	.155	.035	.076	-.017	.035	.054	.013	-.029	.016	.007	.085
18	-.027	.142	.156	.110	.098	.079	.076	.053	.061	.085	.078	.081
19	.039	-.063	.037	.012	.041	-.021	-.031	-.025	.036	-.036	.045	.066
20	-.010	.097	-.004	.015	.029	-.001	-.008	.019	-.140	-.097	-.146	-.007
21	.096	.009	-.048	.001	-.037	.039	.046	.032	-.016	-.013	.017	.072
22	.069	-.045	.044	.066	.044	.053	.111	.060	.075	.001	.092	.107
23	.064	-.064	.028	.017	.031	-.013	-.027	-.018	.022	-.056	.033	.061
24	.006	.088	.003	.031	-.082	-.058	-.062	-.048	-.239	-.162	-.252	-.018

	13	14	15	16	17	18	19	20	21	22	23	24
1	.041	.004	-.177	.020	-.029	-.026	.039	-.010	.096	.069	.064	.006
2	-.063	-.016	.043	-.046	.155	.142	-.063	.097	.009	-.045	-.064	.088
3	-.097	.004	.096	.132	.035	.156	.037	-.004	-.048	.044	.028	.003
4	-.156	.061	.042	.065	.076	.110	.012	.015	.001	.066	.017	.031
5	.079	-.044	.090	.087	-.017	.098	.041	.029	-.037	.044	.031	-.082
6	.059	.335	.083	-.094	.035	.079	-.021	-.001	.039	.053	-.013	-.058
7	.115	.177	.069	-.095	.054	.076	-.031	-.008	.046	.111	-.027	-.062
8	.015	.370	.057	-.086	.013	.053	-.025	.019	.032	.060	-.018	-.048
9	-.112	.398	.112	-.015	-.028	.061	.036	-.140	-.016	.075	.022	-.239
10	.067	.220	.102	-.076	.016	.085	-.036	-.097	-.013	.001	-.056	-.162
11	-.159	.429	.108	.014	.007	.078	.045	-.146	.017	.092	.033	-.252
12	.925	.239	.031	.051	.085	.081	.066	-.007	.072	.107	.061	-.018
13	1.000	.007	.019	.027	.108	.088	.055	.018	.056	.098	.048	-.023
14	.007	1.000	.153	-.019	.020	.117	.015	-.070	.041	.016	-.004	-.157
15	.019	.153	1.000	-.142	.374	.571	-.146	.029	-.041	-.200	-.198	-.227
16	.027	-.019	-.142	1.000	.165	.121	.694	-.018	.096	.476	.703	.110
17	.108	.020	.374	.165	1.000	.747	.130	.156	.228	.079	.124	-.102
18	.089	.117	.571	.121	.747	1.000	.166	.102	.145	.069	.137	-.177
19	.055	.015	-.146	.694	.130	.166	1.000	.020	.201	.692	.971	-.043
20	.018	-.070	.029	-.018	.156	.102	.020	1.000	.256	.055	.055	.073
21	.056	.041	-.041	.096	.228	.145	.201	.256	1.000	.227	.259	.045
22	.098	.016	-.200	.476	.079	.069	.692	.055	.227	1.000	.728	.033
23	.048	-.004	-.198	.703	.124	.137	.971	.055	.259	.728	1.000	.040
24	-.023	-.157	-.227	.110	-.102	-.177	-.043	.073	.045	.033	.040	1.000

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